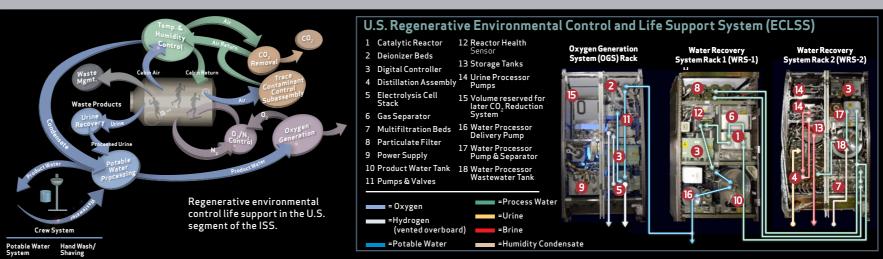


Environmental Control and Life Support System (ECLSS)

Earth's natural life-support system provides the air we breathe, the water we drink, and other conditions that support life. For people to live in space, however, these functions must be performed by artificial means. The ECLSS includes compact and powerful systems that provide the crew with a comfortable environment in which to live and work.



- service module -



Elektron (produces oxy-gen from water through electrolysis; vents hydro-gen out of the Station)

02



Vozdukh (absorbs carbon dioxide from crew)

Crew breathes i

Condensate Water Processor (condenses water vapor from air)

and water vapor.

H₂O/PERSPIRATION

air and generates OXYGEN



Russian EDVs used to store and



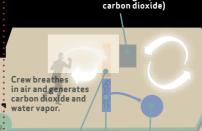


Lithium Hydroxide (LiOH) cartridge used for eliminating CO₂ from air, backup system.



Contingency Water Container (CWC) bag.

Lithium Hydroxide Cartridges (absorb carbon dioxide)



Oxygen and Nitrogen (Shuttle replenishes the

FUEL

CELL O₂

02

CWC Bags (used by astronauts to carry water from the Shuttle to the ISS)

Fuel Cells (make electricity and

water from oxygen and hydrogen)

Lab Condensate Storage Tank (for

Carbon Dioxide Removal Assemb (CDRA, adsorbs carbon dioxide from crew)



vapor from air)

Delivery of High Pressure Oxygen and Air on Progress

Water Delivery from Progress

OXYGEN



SM gas analyzer.



Airflow ventilation fan.



Russian EDVs (used to



Freshwater

Storage Tanks

Solid Fuel Oxygen Generator (SFOG, burns candles to produce oxygen, backup system)

ECLSS on the ISS provides the following functions:

- Recycle wastewater (including urine) to produce drinking (potable) water
- Store and distribute potable water
- Use recycled water to produce oxygen for the crew
- Remove carbon dioxide from the cabin air
- Filter the cabin air for particulates and microorganisms

from the cabin air

Remove volatile organic trace gases

• Monitor and control cabin air partial pressures of nitrogen, oxygen, carbon dioxide, methane. hydrogen, and water vapor

- Maintain total cabin pressure
- Detect and suppress fire • Maintain cabin temperature and
- humidity levels • Distribute cabin air between ISS modules (ventilation)

In the future, a new U.S. Regenerative Environmental Control and Life Support System will take additional steps toward closing the water cycle; it will take humidity condensate from the cabin air and hydrogen.

INTERNATIONAL SPACE STATION (ISS) INTERACTIVE REFERENCE GUIDE

Common Cabin Air Assembly (CCAA, condenses water

